INTRODUCTION

Please read this manually carefully prior to using your Compex stimulator. You are strongly advised to read chapter I "Warnings" of this manual.
The Compex Performance is a stimulator intended for muscular training and pain relief. Any person excepted those mentioned in the chapter I "Warnings" can use the Compex Performance.

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I WARNINGS

1. Counter-indications

Important counter-indications

- Cardiac stimulator (pacemaker)
- Epilepsy
- Pregnancy (do not use on abdominal region)
- Serious arterial circulation problems in lower limbs
- Abdominal or inguinal hernia

Precautions when using the Compex

- After trauma or a recent operation (less than 6 months)
- Muscular atrophy
- Persistent pains
- Need for muscular rehabilitation

Osteosynthesis equipment

The presence of osteosynthesis equipment (metallic equipment in contact with the bone: pins, screws, plates, prostheses, etc.) is not a counter-indication for the use of Compex programmes. The electrical currents of the Compex are specially designed to have no harmful effect on osteosynthesis equipment.

Important!

- Do not use Compex stimulator programmes if you have sensitivity problems.
- Never use the Compex for prolonged periods without medical advice.
- Consult your doctor if you are in any doubt whatsoever.
- Read this manual carefully, in particular chapter VII, which provides information concerning the effects and indications of each stimulation programme.

2. Safety measures

What you should not do with the Compex and the Mi system

- Do not use the Compex or the Mi-SENSOR system in water or in a humid atmosphere (sauna, hydrotherapy, etc.).
- Do not use the Compex or Mi-SENSOR system in oxygen-rich environments.
- Never carry out an initial stimulation session on a person who is standing. The first five minutes of stimulation must always be performed on a person who is sitting or lying down. In rare instances, people of a nervous disposition may experience a vasovagal reaction. This is of psychological origin and is connected with a fear of the muscle stimulation as well as surprise at seeing one of their muscles contract without having intentionally contracted it themselves. A vasovagal reaction causes heart to slow down and blood pressure to drop, which can make you feel weak and faint. If this does occur, all that is required is to stop the stimulation and lie down with the legs raised until the feeling of weakness disappears (5 to 10 minutes).

- Never allow movement resulting from muscular contraction during a stimulation session. You should always stimulate isometrically; this means that the extremities of the limb in which a muscle is being stimulated must be firmly fixed, so as to prevent the movement that results from contraction.
- Do not use the Compex or Mi-SENSOR system if you are connected to a high-frequency surgical instrument as this could cause skin irritation or burns under the electrodes.
- Do not use the Compex or Mi-SENSOR system within X metre (see EMC table) of short wave or microwave devices as this could alter the currents generated by the stimulator. If you are in any doubt as to the use of the Compex close to another medical device, seek advice from the manufacturer of the latter or from your doctor.
- Do not use the Compex stimulator or Mi-SENSOR system in areas where unprotected devices are used to emit electromagnetic radiation. Portable communications equipment can interfere with electrical medical equipment.
- Only use stimulation cables supplied by Compex.
- Do not disconnect any stimulation cables during a session while the stimulator is switched on. Switch the stimulator off first.
- Never connect stimulation cables to an external power supply. There is a risk of electric shock.
- Only use rechargeable battery units supplied by Compex.
- Never recharge the stimulator without first disconnecting the stimulation cables.
- Always use the charger provided by Compex to recharge the batteries.
- Never use the Compex or the charger if it is damaged (case, cables, etc.) or if the battery compartment is open. There is a risk of electric shock.
- Disconnect the charger immediately if the Compex "bleeps" continuously, if there is abnormal heating or smell, or if smoke comes from the charger or the Compex.
- Do not recharge the battery in a confined space (carrying case, etc.). There is a risk of fire or electric shock.
- Keep the Compex and its accessories out of reach of children.
- Do not allow any foreign bodies (soil, water, metal, etc.) to penetrate the Compex, the battery compartment and the charger.
- Sudden temperature changes can cause condensation to build up inside the stimulator. To prevent this, allow it to reach ambient temperature before use.
- Do not use the Compex while driving or operating machinery.
- Do not use the stimulator at altitudes of over 3,000 metres.

Where never to apply the electrodes

- In the vicinity of the head.
- Counter-laterally, i.e. do not use two poles connected to the same channel on opposite sides of the body.
- On or near skin lesions of any kind (wounds, swelling, burns, irritation, eczema, etc.).

Precautions when using the Mi-SENSOR system

- To access the Compex's Mi technology functions, it is essential to connect the Mi-SENSOR cable before switching on the device.
- Avoid connecting the Mi-SENSOR cable when the Compex is switched on.
- Do not disconnect the Mi-SENSOR cable while the sensor is being used.
- To work correctly, the Mi-SENSOR system must not be blocked or subjected to pressure.

Precautions when using the electrodes

- Only use electrodes supplied by Compex. Other electrodes may have electrical properties that are unsuitable for the Compex stimulator.
- Always turn off the stimulator before moving or removing any electrodes during a session.
- Do not place the electrodes in water.
- Do not apply solvents of any kind to the electrodes.
- For best results, wash and clean the skin of any oil and dry it before attaching the electrodes.
- Attach the electrodes in such a way that their entire surface is in contact with the skin.
- For obvious reasons of hygiene, each user must have his/her own electrode set. Do not use the same electrodes on different people.
- Never use a set of adhesive electrodes for more than 15 sessions as their bonding power deteriorates over time and optimal contact is very important for both user comfort and efficacy.
- Some people with very sensitive skin may experience redness under the electrodes after a session. Generally, this redness is completely harmless and disappears after 10 to 20 minutes. Never start another stimulation session in the same area, however, if the redness is still visible.

II PRESENTATION

1. Reception of equipment and accessories

Your kit contains:

515000	1 stimulator
68301x	1 charger
601131	1 set of black Snap connectors for electrodes, colour-coded (blue, green, yellow, red)
602076	2 bags of small electrodes (5 x 5 cm)
602077	2 bags of large electrodes (5 x 10 cm)
88573x	2 user and specific application manuals
88562x	2 quick start guides "Test your Compex in 5 minutes"
949000	1 belt clip
680029	1 travel pouch

2. Guarantee

Refer to the flyer attached.

3. Maintenance

Do not sterilise the stimulator.
Clean your stimulator using a soft cloth, and an alcohol-based, solvent-free cleaning product.
Use only a minimum amount of liquid when cleaning the Compex.
Do not attempt to repair the stimulator or any of its accessories.
Never dismantle the Compex or the charger containing high-voltage parts because of risk of electric shock.
Compex Médical SA declines all responsibility for any damages or consequences resulting from unauthorised attempts to open, modify, or repair the stimulator. This may only be done by persons or repair services authorised by Compex Médical SA.
Your stimulator does not require calibration. Each Compex stimulator is always tested and validated prior to distribution. These are stable and do not vary under normal conditions.
Nonetheless, as the Compex is a high-quality electrical instrument, its lifespan depends on the use that is made of it and the care and maintenance it receives during its lifetime. If your stimulator contains parts that seem worn or defective, please contact your nearest Compex Médical SA customer service centre regarding an upgrade.
Medical and health professionals are obliged to service the unit in compliance with relevant national laws and regulations. This involves testing performance and safety parameters at regular intervals.

4. Storage and transportation conditions

The Compex contains rechargeable batteries. This is why it must be stored and transported in accordance with the following conditions:

Storage and transportation temperature:
- 20°C to 45°C

Maximum relative humidity: 75%

Atmospheric pressure: 700 hPa to 1,060 hPa

5. Conditions of use

Usage temperature: 0°C to 40°C

Relative humidity: 30% to 75%

Atmospheric pressure: 700 hPa to 1,060 hPa

Do not use in areas where there is a risk of explosion.

6. Elimination

The main purpose of the 2002/96/EEC Directive is to prevent the creation of waste electrical and electronic equipment (WEEE) and to reduce the amount of waste to be disposed of by encouraging reuse, recycling, and other forms of recovery. The wheelie bin pictogram with the bar through it means that the equipment cannot be discarded with household refuse, but that it must be collected selectively. The equipment must be delivered to a suitable collection point for treatment. By doing so, you will be contributing to the safeguarding of natural resources and health.
Batteries must be disposed of in compliance with relevant national regulatory requirements.

7. Standards

The Compex complies with current medical standards.
To guarantee your safety, the Compex has been designed, manufactured, and distributed in compliance with the requirements of European Directive 93/42/EC on medical devices.
The Compex also complies with the IEC 60601-1 standard on general safety requirements for electro-medical devices, the IEC 60601-1-2 standard on electromagnetic compatibility, and the IEC 60601-2-10 standard on particular safety requirements for nerve and muscle stimulators.
Current international standards require that a warning be given concerning the application of electrodes to the thorax (increased risk of cardiac fibrillation).
The Compex also complies with Directive 2002/96/EEC on waste electrical and electronic equipment (WEEE).

8. Patents

The Compex incorporates several innovations with patents pending.

9. Normalised symbols

Caution: Read the user manual or operating instructions (symbol no. 0434 IEC 60878).

The Compex is a class II device with internal electric power and type BF applied parts (symbol no. 5333 IEC 60878).

Waste electrical and electronic equipment (WEEE) marking according to EN 50419 standard.

The On/Off button is a multi-function button (symbol no. 5009 IEC 60878).

Functions
On/Off (two stable positions)
Waiting or preparation for part of the unit
Stop (turns system off)

10. Technical characteristics

General information

941210 Battery unit

Nickel metal hybrid (NiMH) rechargeable (4.8V / ≥ 1,200 mA/h).

68301x Chargers

Only battery chargers bearing the following information can be used to recharge the batteries supplied with Compex stimulators:

Europe
683010 Type TR1509-06-E-133A03 Input 90-264 VAC / 47-63 Hz / 0.5 A max. Output 9 V / 1.4 A / 15 W
UK
683012 Type TR1509-06-U-133A03 Input 90-264 VAC / 47-63 Hz / 0.5 A max. Output 9 V / 1.4 A / 15 W

601131 Black Snap-connection stimulation cables

Device connector: 6-pin
Electrode connector: Female Snap
Length: 1,500 mm

601160 Stimulation cable fitted with Mi-SENSOR

(accessory sold separately)
Device connector: 6-pin
Electrode connector: Female Snap
Length: 1,500 mm

Protection index

IPXO (IEC 60529)

Neuro-stimulation

All electrical specifications are given for an impedance of 500-1,000 ohms per channel.

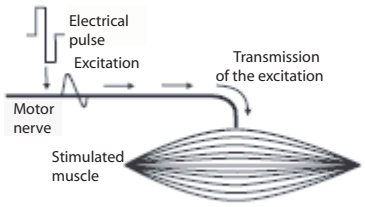
Channels: Four independent and individually adjustable channels that are electrically isolated from each other and earthed.
Pulse shape: constant rectangular current with pulse compensation to eliminate any direct current component to prevent residual polarisation at skin level.
Maximum pulse intensity: 120 mA.
Pulse intensity increments: manual adjustment of stimulation intensity from 0 to 999 (energy) in minimum increments of 0.5 mA.
Pulse width: 60 to 400 µs.
Maximum electrical charge per pulse: 96 microcoulombs (2 x 48 µC, compensated).
Standard pulse ramp-up time: 3 µs (20%-80% of maximum current).
Pulse frequency: 1 to 150 Hz.

III HOW DOES ELECTROSTIMULATION WORK?

The principle of electrostimulation is to stimulate nerve fibres by means of electrical impulses transmitted by electrodes.
The electrical pulses generated by Compex stimulators are high quality pulses - offering safety, comfort and efficiency - which can stimulate different types of nerve fibres:
1. the motor nerves, to stimulate a muscular response. The quantity and the benefits obtained depend on the stimulation parameters and this is known as electro-muscular stimulation (EMS).
2. certain types of sensitive nerve fibres to obtain analgesic or pain-relieving effects.

1. Motor nerve stimulation (EMS)

In voluntary activity, the order for muscular work comes from the brain, which sends a command to the nerve fibres in the form of an electrical signal. This signal is then transmitted to the muscular fibres, which contract.
The principle of electrostimulation accurately reproduces the process observed during a voluntary contraction. The stimulator sends an electrical current impulse to the nerve fibres, exciting them.
This excitation is then transmitted to the muscular fibres causing a basic mechanical response (= muscular twitch). The latter constitutes the basic requirement for muscular contraction. This muscular response is completely identical to muscular work controlled by the brain. In other words, the muscle cannot distinguish whether the command comes from the brain or from the stimulator.
The parameters of the Compex programmes (number of impulses per second, contraction time, rest time, total programme time) subject the muscles to different types of work, according to muscular fibres. In fact, different types of muscular fibres may be distinguished according to their respective contraction speed: slow, intermediate and fast fibres. Fast fibres will obviously predominate in a sprinter, while a marathon runner will have more slow fibres.
With a good knowledge of human physiology and a perfect mastery of the stimulation parameters of the various programmes, muscular work can be directed very precisely towards the desired goal (muscular reinforcement, increased blood flow, firming up, etc.).



Elementary mechanical response - twitch

2. Stimulation of the sensitive nerves

The electrical impulses can also excite the sensitive nerve fibres to obtain an analgesic or pain-relieving effect.
The stimulation of the tactile sensitive nerve fibres blocks the transmission of pain by the nervous system. The stimulation of another type of sensitive fibres creates an increase in the production of endorphins and, therefore, a reduction of pain.
With pain relief programmes, electrostimulation can be used to treat localised sharp or chronic pains as well as muscular pains.

Caution: Do not use the pain relief programmes for a long period without medical advice.

Benefits of electrostimulation

Electrostimulation is a very effective way to make your muscles work:

- with significant improvement of different muscular qualities
- without cardio-vascular or mental fatigue
- with limited stress on the joints and tendons. Electrostimulation thus allows a greater quantity of work by the muscles compared with voluntary activity.

  To be effective, this work must involve the greatest possible number of muscular fibres. The number of fibres working depends on the stimulation energy. The maximum tolerable energy should therefore be used. The user controls this aspect of stimulation. The higher the stimulation energy, the greater the number of muscular fibres that are working and, therefore, the more significant the progress achieved. To maximise results, Compex recommends that you complement your electrostimulation sessions with other efforts, such as:
  - regular physical exercise
  - proper and healthy nutrition
  - balanced lifestyle.

IV USAGE GUIDELINES

The usage guidelines presented in this section should be considered as general rules. For all programmes, it is recommended that you read carefully the usage information and advice presented in chapter VII "Programmes and specific applications".

1. Electrode positions

For optimal results, use the electrode positions recommended by Compex. To do this, refer to the pictures and pictograms shown on the inside cover of the manual.

Each stimulation cable has two poles:
A positive pole (+) = red connection
A negative pole (–) = black connection

A different electrode must be connected to each pole.
Note: It is possible and normal to have an electrode arrangement that leaves one electrode connection free from a cable.
Depending on the characteristics of the current, efficacy can be optimised in certain programmes by placing the electrode connected to the positive pole (red connection) "strategically".
When working with a muscle stimulation programme (programme involving muscle contractions), it is important to place the positive electrode on the motor point of the muscle.
It is crucial to choose the right size electrodes (large or small) and correctly position these on the muscle group you want to stimulate to ensure the efficacy of the treatment. Therefore, always use the size of electrodes shown in the pictures. Unless you have other specific medical instructions, always follow the placement directions in the pictures.
Where necessary, look for the best possible position by slowly moving the positive electrode over the muscle until you find the point that will produce the best contraction or the most comfort for you.

Compex disclaims all responsibility for consequences arising from electrodes placed in other positions.

2. Stimulation positions

This position will vary depending on the position of the electrodes, the muscle group you wish to stimulate, and the programme you are using. For programmes involving powerful muscular contractions, the muscle should always be stimulated in an isometric fashion. You must therefore fix the extremities of your limbs securely. In this way, you provide maximum resistance to the movement and prevent any shortening of the muscle during the contraction, which could create cramp pains and serious stiffness after the session. For example, when stimulating the quadriceps, the user should be in a seated position with the ankles fixed with straps to prevent extension of the knees.
For other types of programmes (for example, **Pain relief** programmes and **Active Recovery**, **Relaxing massage**, **Reviving massage** or **Capillarization** programmes), which do not induce powerful muscular contractions, position yourself as comfortably as possible.

To determine the stimulation position to be adopted depending on the chosen placement of the electrodes and programme, refer to chapter VII "Programmes and specific applications".

3. Adjusting stimulation energies

In a stimulated muscle, the number of recruited fibres depends on the stimulation energy. It is therefore extremely important to use maximum

stimulation energies (up to 999) in order to recruit the maximum number of fibres. Below a significant stimulation energy level, it is pointless, for an average user, to do stimulation sessions. In fact, the number of fibres involved in the stimulated muscle is too low for any interesting improvement in the performance of that muscle.
The more fibres that are recruited, the greater the improvement that will be seen. If only 1/10 of the fibres of a muscle work under stimulation, only that 1/10 can progress. That is obviously much less appreciable than if 9/10 of the fibres work and can therefore progress. You should therefore take care to work with maximum stimulation energies, i.e., always at the limit of what you can support.
There is obviously no need for you to reach the maximum stimulation energy right from the first contraction of the first session of the first cycle. If you have never used Compex stimulation before, you should do only half of the desired programme during the first 3 sessions with sufficient energy to produce powerful muscular contractions to familiarise yourself with the technique of electrostimulation. You can then start your first stimulation cycle with your own specific programme and level. After the warm-up, which must produce very clear muscular twitches, you should raise the stimulation energy progressively, from contraction to contraction, during the first three or four minutes of the work sequence. You should also progress with stimulation energies used from session to session, particularly during the first three sessions of a cycle. A normally prepared person will already reach very significant stimulation energies during the fourth session.

4. Progression in the levels

In general, it is not advisable to go through the different levels quickly with the intention of reaching level 5 as fast as possible. In fact, the different levels correspond to progress with electrostimulation.
The most frequent error is to change from level to level as stimulation occurs at increasingly higher stimulation energies. The number of fibres subjected to stimulation depends on the stimulation energy. The nature and amount of work that these fibres do depend on the programme and level. The aim is, first of all, to progress through the electrical stimulation energies and then through the levels. The more numerous the muscle fibres you stimulate, the more numerous will be the fibres that are going to progress. But the speed of progress of these fibres and their aptitude for operating at a higher rating depend on the programme and level used, the number of sessions per week and the length of these sessions, and also on intrinsic factors particular to each individual.
The simplest and most usual procedure is to start with level 1 and raise the level when changing to a new stimulation cycle.
At the end of a cycle, you may either start a new cycle at the next level up or do some maintenance at the rate of 1 session a week at the last level reached.

5. Alternation of stimulation sessions / voluntary training

The stimulation sessions can be done outside or during voluntary training.
When voluntary training and stimulation are done during the same session, it is generally recommended that the voluntary training be done first followed by the stimulation. This means that the voluntary training is not done on muscle fibres which are already tired. This is particularly important for strength and explosive strength training.
However, in resistance training, it can be very useful to proceed in the reverse order. Before the voluntary training, by means of stimulation for resistance, a

"specific pre-fatigue session" is carried out on the muscle fibres without general and cardio-vascular fatigue. In this way, the voluntary effort on the "prepared" fibres will push the glycolytic metabolism faster and further.

V THE Mi TECHNOLOGY

Mi stands for *muscle intelligence™* (all items referring to this technology are preceded by the symbol Mi).
This technology takes into account the specific features of each of our muscles and thus offers stimulation adapted to their characteristics.
It's simple, as the data is transmitted to the stimulator automatically!
It's personalised, as each of our muscles is unique!

The Performance stimulator bears the label Mi-READY, as it can use certain functions of the Mi technology if a stimulation cable fitted with the Mi-SENSOR system (sold separately) is connected.

1. Practical rules of use

*To access the Mi functions make sure that the stimulation cable fitted with the Mi-SENSOR system (sold separately) is connected **before** you turn on the stimulator.*
Avoid connecting the stimulation cable fitted with the Mi-SENSOR system when the Compex is switched on.
To work correctly, the Mi-SENSOR system must not be blocked or subjected to pressure.
During the stimulation session, the stimulation cable fitted with the Mi-SENSOR system must always be connected to an electrode.

Mi-SENSOR *(sold separately)*

- This is a small sensor that links the stimulator to the electrodes.
  Mi-SENSOR is the key which can be used to measure certain physiological characteristics of the muscle, analyse them and adapt stimulation parameters. This tailoring of each programme to the changing condition of the muscle clearly enhances your comfort and the therapeutic efficacy.

Mi-SCAN

- This function adapts the electrostimulation session to the physiology of each user. Just before starting the work session, Mi-SCAN probes the chosen muscle group and automatically adjusts the stimulator parameters to the excitability of this area of the body. It is a truly personalised measurement.
  N.B.: The Mi-SCAN function operates as soon as a stimulation cable fitted with the Mi-SENSOR system (sold separately) is connected to the stimulator.
- This function is implemented at the start of the programme by a short sequence during which measurements are taken (a horizontal bar scans the figurine at the left of the screen).
- Throughout the entire measurement test, you must remain completely still and be perfectly relaxed. The Mi-SENSOR system is very sensitive: the smallest contraction or the slightest movement could disturb the measurement test.
- Note that certain people might feel an unpleasant tingling sensation during the test.
- Once the test is complete, the symbol ✓ will appear, indicating that the programme can be started.

Mi-TENS

- The Mi-TENS function can be used to considerably reduce the number of unwanted muscular contractions, enhancing both user comfort and treatment efficacy.
- The Mi-TENS function can only be accessed for the **Modulated TENS** and **Epicondylitis** programmes.
- For these programmes, the Mi-TENS function allows you to control the stimulation energies while maintaining

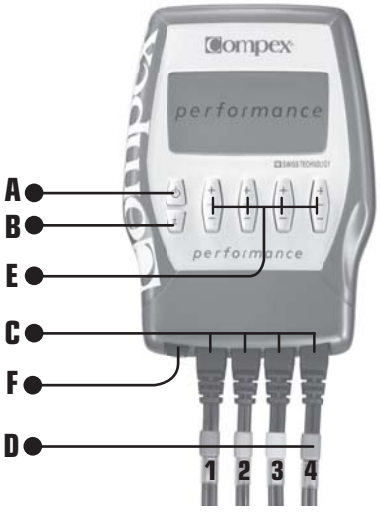
them at an effective level and considerably limiting the onset of muscular contractions.
- Short measurement tests (lasting 2 to 3 seconds) are carried out regularly throughout the entire programme.
- There is a test phase after each increase of the stimulation energies. To ensure the correct performance of these tests, you must remain perfectly still during this time.
- Depending on the results of the measurement tests recorded by the device, the level of the stimulation energies may be slightly decreased automatically.
- It is important always to adopt the most comfortable possible stimulation position. Also, you should try to remain still and not contract the muscles of the stimulated area.

Mi-RANGE
- This function indicates the ideal energy adjustment range for programmes whose efficiency requires vigorous muscular twitches.
- The **Mi-RANGE** function is therefore only available in programmes that use low stimulation frequencies (less than 10 Hz).
- For programmes allowing the use of the **Mi-RANGE** function, the stimulator checks whether you are in the ideal energy range. If you are below the range, the stimulator prompts you to increase the energy by displaying + signs.
- Once the stimulator has detected your ideal adjustment area, a square bracket will appear to the right of the bar graph of the channel to which the **Mi-SENSOR** system is connected. The figures in this bracket indicate the energy range you must work in order to achieve optimal results.
- If you set the energy level below this range, the stimulator will prompt you to increase it by flashing a series of + signs on the screen.

VI HOW IT WORKS

You are strongly advised to carefully read the counter-indications and safety measures described at the start of this manual (chapter 1: "Warnings") prior to using your stimulator.

1. Description of the stimulator



A On/Off button

B "i" button used to:
Increase stimulation energies in several channels simultaneously.
Access the LAST menu (the last programme used).

C Sockets for the 4 stimulation cables

D Stimulation cables
Channel 1 = blue Channel 2 = green
Channel 3 = yellow Channel 4 = red

E +/- buttons for the 4 stimulation channels

F Socket for the charger

G Rechargeable battery compartment

H Belt clip socket

2. Connections

Connecting the cables

The stimulator cables plug into the 4 sockets on the front of the device.
Four cables can be connected simultaneously to the four channels of the device. Both the sockets and the cables are colour-coded to simplify use and facilitate identification of the different channels:

blue = channel 1 green = channel 2
yellow = channel 3 red = channel 4

The Performance stimulator bears the label Mi-ready, in other words it can use certain functions of the Mi technology if a stimulation cable fitted with the Mi-SENSOR system is connected. This cable, sold separately, gives access to the Mi-SCAN, Mi-TENS and Mi-RANGE functions. It is connected to any one of the four stimulation channel sockets located on the front of the device and two electrodes are "clipped" on to it in the same way as for a conventional cable.

Connecting the charger

The Compex has considerable operating autonomy, as it uses rechargeable batteries.
To recharge them, use the charger supplied with your device and connect it to the front of the device, then plug the charger in a socket.
Remove any stimulation cables connected to the stimulator before recharging it.
We strongly recommend you fully charge the battery before using it for the first time as this will improve its autonomy and life span.

3. Preliminary settings

Before using the unit for the first time, you should select the working language of the device which is displayed on the options screen. Follow the instructions below. Afterwards, for the greatest comfort, Compex offers you a number of setting options (choice of language, screen contrast adjustment, adjusting backlighting and sound volume setting). To change any of these settings, bring up the options screen by holding the On/Off button on the left of the stimulator for a few seconds.

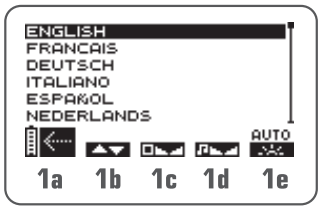


fig.1

1b Use the channel 1 +/- button to choose the language you wish to use.

1c Use the channel 2 +/- button to adjust the contrast of the screen.

1d Use the channel 3 +/- button to adjust the volume.

1e Use the channel 4 +/- button to adjust the backlighting.
On: backlighting always on.
Off: backlighting always off.
Auto: backlighting activated whenever a button is pressed.

1a Press the On/Off button to validate the selected parameters. Your stimulator saves your options. It is now ready for use with the settings you selected.

4. Selecting a programme category

To switch on your stimulator, briefly press the On/Off button on the left of the Compex. A musical signal can be heard and a screen showing the different programme categories is displayed.
Before choosing a programme, you should select the desired category.

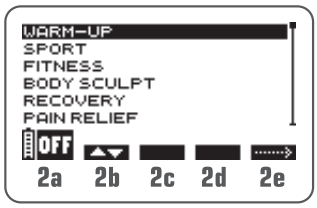


fig.2

2a Press the On/Off button to switch off the unit.

2b Use the channel 1 +/- button to choose the category you wish to use.

2e Press the channel 4 +/- button to confirm your choice and access the programme selection screen.

N.B.: Press the "i" button to access the LAST menu.

5. Selecting a programme

To choose a programme, it is particularly useful to consult chapter VII "Programmes and specific applications".

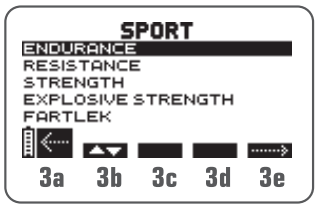


fig.3

3a Press the On/Off button to return to the previous screen.

3b Press the channel 1 +/- button to choose a programme.

3e Press the channel 4 +/- button to validate your selection and, depending on whether you have the symbol START or ⟶
a) START = the stimulation session starts immediately.
b) ⟶ = a parameter setting screen appears.

N.B.: Press the i button to access the LAST menu.

LAST

To make your Compex more pleasant and easier to use, the LAST menu allows you to directly access the last used programme. To access the menu, press the "i" button before selecting a programme. This function can be accessed from the programme category screen (**fig. 2**), or the programme list screen (**fig. 3**).

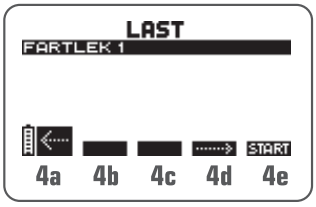


fig.4

4a Press the On/Off button to return to the previous screen.

4d Press the channel 3 +/- button to personalize the programme.

4e Press the channel 4 +/- button to execute the programme.

6. Personalising a programme

The programme personalisation screen is not available for all programmes!

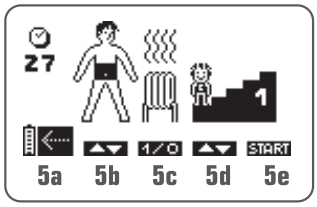


fig.5

5a Press the On/Off button to return to the previous screen.

5b Some programmes require manual selection of the muscle group you want to stimulate. This muscle group is shown in black on a small figurine above channel 1. Use the channel 1 +/- button to select your chosen group. The seven muscle groups proposed are shown successively in black on the small figurine:

- Abdomen and lower back
- Buttocks
- Thighs
- Legs and feet
- Forearms and hands
- Shoulders and arms
- Thorax and back

Current international standards require that a warning be given concerning the application of electrodes to the thorax (increased risk of cardiac fibrillation).

N.B.: If a cable fitted with the Mi-SENSOR system (sold separately) is connected to the device, the muscle group is selected automatically.

5c Press the channel 2 +/- button to stop the warming-up sequence (closing the small animated rising convection symbol above the radiator).

5d Press the channel 3 +/- button to choose the programme difficulty level.

5e Press the channel 4 +/- button to confirm your choices and launch the programme.

7. During the stimulation session

Preliminary Mi-SCAN test

The Mi-SCAN test is launched only if a cable fitted with the Mi-SENSOR system (sold separately) is already connected to the stimulator when this is turned on!

It is essential that you remain completely still and relaxed during the entire test.
If the Mi-SENSOR system is connected, the test starts immediately after programme selection and personalisation.

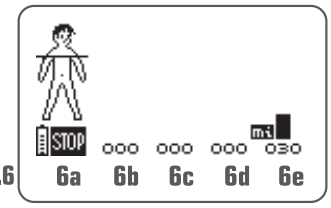


fig.6

6a Press the On/Off button to interrupt the test at any moment. To relaunch the test from the start, press any of the 4 +/- buttons.

6e The mi logo above channel 4 indicates that the mi-SENSOR cable is connected to the stimulator. The figures in channel 4 will automatically change during the test as the sensor records different measurements. The 4 +/- buttons will be disabled for the duration of the test.
Once the test is complete, you will automatically be taken to the default programme start screen and prompted to increase the stimulation energies.

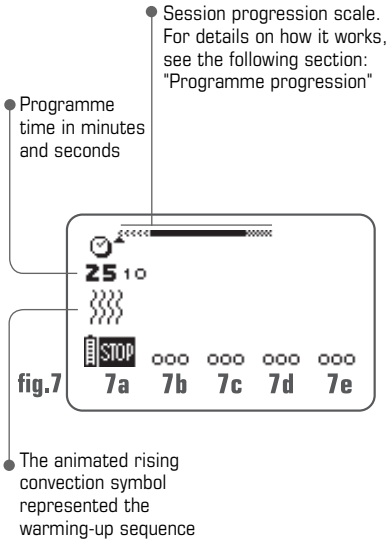

Session progression scale. For details on how it works, see the following section: "Programme progression"
Programme time in minutes and seconds
25 10
STOP
000 000 000 000
7a 7b 7c 7d 7e
The animated rising convection symbol represented the warming-up sequence

fig.7

Adjusting stimulation energies

When you start a programme, you will be prompted to increase the stimulation energies. This is critical to the success of any treatment. To find out what energy level needs to be reached for each programme, refer to the specifc applications.

7a Press the On/Off button to place the unit in Pause mode.

7b c d e The Compex bleeps and the symbols of the four channels flash, changing from + to 000: the four channels are at 000 energy. You must increase the stimulation energy so that the stimulation can start. To do this, press the + buttons for the relevant channels until the desired setting is reached. If you want to increase the energy level of all four channels simultaneously, press the "i" button, located below the On/Off button. Press the "i" button twice to increase the levels in the first 3 channels, and 3 times to increase the levels in the first 2 channels. When you press the "i" button, the associated channels are highlighted in white on a black background.

Programme progression

Stimulation actually starts when the stimulation energy has been increased. The examples reproduced below are sufficient to understand the general rules.

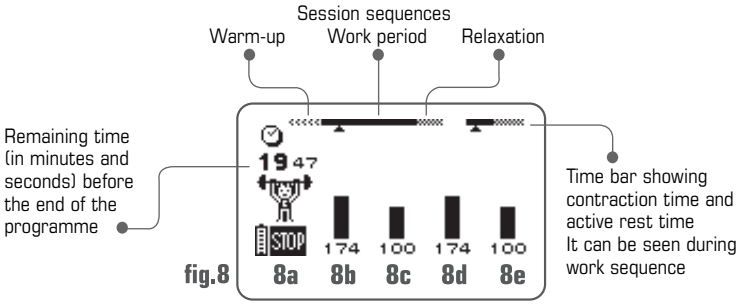


fig.8

8a Press the On/Off button to interrupt the programme momentarily. To restart it, simply press the channel 4 +/- button. The session will resume at 80% of the energy levels that were in use prior to the interruption.

8 b c d e The different energies reached during the contraction phase are shown by a series of black bar graphs, that of the rest phase energies are shown by hatched bar graphs.

N.B.: Active rest phase stimulation energies are automatically set at 50% of contraction energies. These can be modified during the rest phase. Once modified, they will be totally independent of the contraction energies.

N.B.: If your Compex emits a beeping sound and the symbols ▬ under the active channels begin to flash the stimulator is suggesting you increase the level of the stimulation energies. If you are working at the maximum tolerance level, simply ignore this message.

Statistics

Your stimulator includes a statistics menu that allows you to view in real time the important information for a programme. To access the statistics screen, you must put the stimulator into the "Pause" mode or wait for the end of the programme.

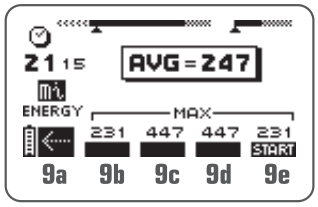


fig.9

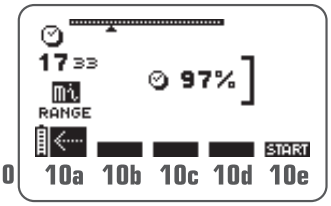


fig.10

Fig. 9 For programmes inducing muscular contractions, the indication "MAX" shows the maximum energy level reached per channel during contraction phases. "AVG" indicates the average stimulation energy level used by the different channels during the contraction phase.

Fig. 10 In low frequency programmes, the Mi-RANGE function, symbolised by a single square bracket shows what percentage of stimulation time was spent in the optimal energy range.

9e-10e Press the channel 4 +/- button to resume the programme at the point where it was interrupted.

End of programme

At the end of each session, a small flag will be displayed on the screen and a short melody will be played. To switch off the stimulator, press the On/Off button. **D**epending on the programmes, usage statistics may be displayed (cf. **fig. 9** and **10**). It should be noted, however, that statistics are not available for all programmes.

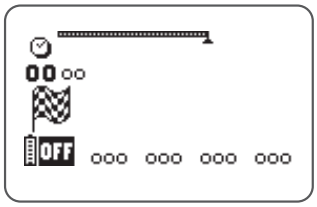


fig.11

8. Consumption and recharging

Never recharge the stimulator without first disconnecting the stimulation cables.
Always use the charger supplied by Compex to recharge the batteries.

The Compex runs on rechargeable batteries. The battery's life depends on the programmes and stimulation energy used. **W**e strongly recommend you fully charge the battery before using your Compex for the first time as this will improve its autonomy and life span. If you do not use your device for a long period of time, please recharge the battery regularly.

Electricity consumption

The charge state of the battery is indicated by a small battery icon on the screen.

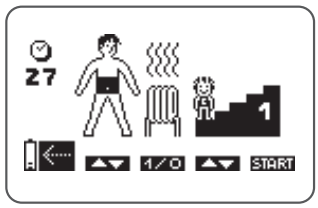


fig.12

If the battery icon contains just two lines, this means that power is running low. Stop the session and recharge the unit. **I**f the symbol START normally displayed above the channel 4 +/- button is not visible and if the small battery icon is flashing, the batteries are flat. It is no longer possible to use the device. Recharge immediately.

Recharging

Remove all stimulation cables from the stimulator before recharging it. Connect the charger to the mains and then connect the stimulator to the charger. The charge menu illustrated below appears automatically.

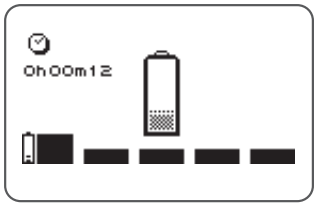


fig.13

The duration of the charging operation is shown on the screen (a complete charge may take 1.5 hours). The battery icon is animated while the battery is recharging. **W**hen fully charged, the icon will be full and the total time taken to recharge the battery will flash on the screen. Simply disconnect the charger: the Compex will turn off automatically.

9. Problems and solutions

Electrode fault

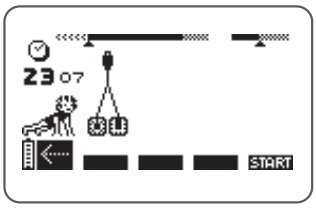


fig.14

The Compex bleeps and alternatively displays the symbol of a pair of electrodes and an arrow pointing to the channel where a problem has been detected. In the example above, the stimulator has detected an error in channel 1.

- Check that electrodes are connected to this channel.
- Check whether the electrodes are old, worn, and/or the contact is poor: try using new electrodes.
- Try using the stimulation cable on a different channel. If the cable is still showing a fault, replace it.

Stimulation is not producing the usual sensation

- Check that all the settings are correct and ensure the electrodes are positioned properly.
- Change the positioning of the electrodes slightly.

The stimulation effect causes discomfort

- The electrodes are beginning to lose adhesion and no longer provide good contact on the skin.
- The electrodes are worn and need to be replaced.
- Change the positioning of the electrodes slightly.

The stimulator is not working

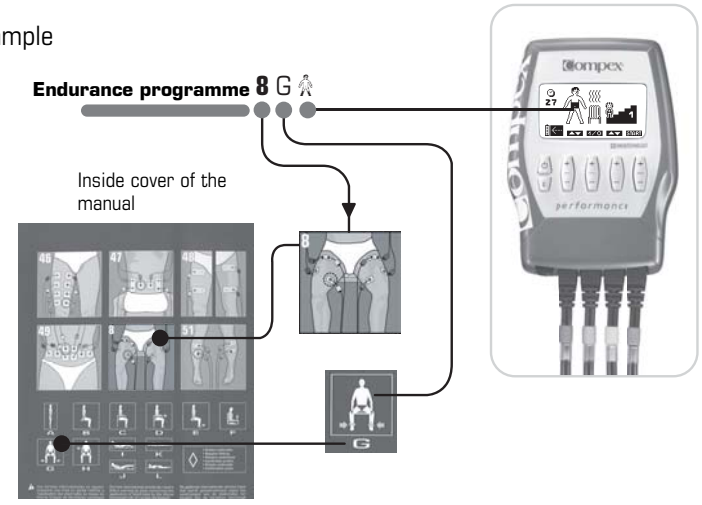
fig.15

- If an error screen appears while the equipment is in use, note the error number (in the example in **fig. 15**, error 1/0/0) and contact the consumer service stated and approved by Compex Médical SA.

VII PROGRAMMES AND SPECIFIC APPLICATIONS

The following applications are given by way of example. They will give you a better understanding of how electrostimulation sessions can be combined with voluntary activity. They will help you to determine the best procedure to follow according to your needs (programme selection, muscle group, time, electrode placement, body position).
You can also choose a muscle group different to the one indicated, depending on the way you exercise or the area of the body that you want to stimulate.
The specific applications will provide you with information on electrode placement and the stimulation position to adopt. This information is given as a number (electrode positioning) and a letter (body position). These refer to the pictures showing placement of the electrodes and the pictograms showing the body positions on the inside cover of the manual.
If the Compex **is not fitted** with the Mi-SENSOR cable, the muscle group to be selected in the device is shown on the small figurine. If this does not appear (-), there is no need to choose a muscle group: selection is automatic.
If the Compex **is fitted** with the Mi-SENSOR cable (sold separately), the muscle group is selected automatically. There is therefore no need to look at the small figurine.

Example



For the 4 basic workout programmes: **Endurance**, **Resistance**, **Strength**, **Explosive strength**, *we advise you to consult the training planner on our website www.compex.info. An interactive question and answer system takes you to a personalised training plan.*

1. Warm-up category

Programmes	Effects	Uses	Stimulation energies	Mi functions if Mi-SENSOR cable (sold separately) connected
Capillarization	Considerable increase in blood output Capillaries develop	In the period before competition, for those participating in endurance or resistance sports To improve endurance in those whose fitness level is not hig	Progressively increase stimulation energies until you obtain clearly visible muscular twitches	Mi-SCAN Mi-RANGE
Toning massage	Activation of blood circulation Arousal of contractile muscular properties Revitalising effect	To prepare the muscles in an ideal manner before an unusual/one-time physical activity	Progressively increase stimulation energies until you obtain clearly visible muscular twitches Check that the stimulation energy is sufficient to impose significant muscular contractions	Mi-SCAN Mi-RANGE
Potentiation	Increase contraction speed and the amount of power gained Reduce effort required by nerves to reach maximum strength	For optimum muscle preparation immediately before competition	Maximum bearable energy (0-999) The energy is adjusted during the phases of the programme when the muscle relaxes and reacts with simple muscle twitches	Mi-SCAN

Specific applications

Preparation for seasonal endurance activity (eg: hiking, bicycle touring)

Sporting physical activities that last a long time (walking, cycling, cross-country skiing, etc.) require strong muscles with a good capillary circulation so that the muscle fibres can be properly oxygenated. **W**hen a long-duration physical activity is not practised, or not practised regularly enough, the muscles lose their capacity to effectively consume oxygen and the capillary system becomes rarefied. This lack of muscular quality makes exercising uncomfortable and limits the speed of recuperation, and is responsible for many unpleasant side effects such as drowsiness, contractures, cramp and swelling. To restore to muscles their endurance and ensure full activation of the capillary system, the Compex offers a very efficient mode of stimulation.

Duration of the cycle: 6-8 weeks before starting the hike, 3x/week, alternating muscular groups every other day

Programmes: **Capillarization** 8Σ and **Capillarization** 25Σ

Achieving peak form before competition for resistance sports (eg: 800 metres, 1,500 metres, mountain biking, mountain stage in cycling, cycling pursuit on track, 200 metres swimming, slalom)

Sports that require maximum effort lasting between 30 seconds and 5 minutes are the so-called resistance sports. Rapid fibres must work at a capacity close to their maximum and be capable of maintaining this intensive work throughout the event without weakening, in other words the rapid fibres must be resistant. The **Capillarization** programme, which produces a very significant increase in the blood flow in the muscles, brings about development of the intramuscular capillary system (capillarization). This growth of the capillaries works best if it occurs around the rapid fibres. In this way, the latter's exchange surface with the blood increases, allowing an improved supply of glucose, better diffusion of oxygen and quicker evacuation of lactic acid. Capillarization therefore allows the rapid fibres to be more resistant and to maintain their optimum capacity over a longer period. However, prolonged or too frequent use of this programme may induce a modification of rapid fibres into slow fibres, thereby risking a decline in performance for strength and speed sports. It is therefore important to follow closely the recommendations below concerning the specific application in order to benefit from the positive effects of this treatment.

Duration of the cycle: 1 week before competition, 2 x/day, with a 10 minute break between the 2 sessions

Programme: **Capillarization** 8Σ

Prevention of contractures in the muscles of the back of the neck for cyclists

During voluntary training or competitions, some athletes experience the problem of contractures in support muscles (for example, the back of the neck for cyclists). Use of the **Capillarization** programme reduces, and may resolve, this problem. The marked increase in blood circulation and development of the capillary system improve the oxygenation of fibres and their exchanges with the blood. The muscle therefore becomes less prone to contractures.

Duration of the cycle: 3 weeks, 1 x/day

Programme: **Capillarization** 15Σ

Muscular and circulation conditioning before physical activity

People who regularly practise sports are well aware of the transition, which is often painful, between a rest activity and an occasional physical effort. The objective of the usual warming-up techniques is to respond to this need to activate progressively the physiological functions involved in one-time physical activity. This physiological need is also very desirable for moderate but unusual physical efforts, as is frequently the case for most of us (treks, biking, jogging, etc.).

The **Toning massage** offers an ideal benefit in the form of optimal muscular and circulation conditioning before any type of physical effort. It allows us to avoid the uncomfortable sensations – usually experienced during the first few minutes of unusual physical efforts – and to limit the secondary consequences of insufficient preparation (aches, etc.).

Duration of the cycle: To be used on the muscles during anticipated physical activity (for example, quadriceps), in the last thirty minutes before physical activity

Programme: **Toning massage** 8Σ

Use of Potentiation programme to optimise the effects of explosive strength (sprints, jumps, squash, football, basketball, etc.) immediately before specific training or competition

The **Potentiation** programme should be used on the key muscles involved in the discipline practised. In this example, the key muscles of the sprinter (quadriceps) will be stimulated. For other disciplines, the choice of muscles to be stimulated may be different. The **Potentiation** programme must not take the place of the voluntary warm-up usually performed before the competition. Activation of the cardiovascular system, short accelerations becoming progressively faster, practice starts and stretching will therefore be carried out by the athlete according to his normal routine. A **Potentiation** session of short duration (approximately 3 minutes) will be applied on the sprinter's quadriceps immediately before the start of his race (or races, in the event of qualifying events). The specific muscular activation of the Potentiation programme allows the maximum level of performance to be attained in the very first seconds of the race.

Duration of the cycle: 1 x

Always carry out the session as soon as possible before the start and at all events not more than 10 minutes before the start. After 10 minutes, the phenomenon of potentiation of muscle fibres quickly wears off.

Programme: **Potentiation** 8G

2. Sport category

Programmes	Effects	Uses	Stimulation energies	Mi functions if Mi-SENSOR cable (sold separately) connected
Endurance	Improvement in the ability of stimulated muscles to absorb oxygen Improvement in performance in endurance sports.	For athletes who wish to improve their performance in long-duration sporting events	Maximum bearable energy (0-999)	Mi-SCAN
Resistance	Improvement in lactic muscular activities Improvement in performance for resistance sports	For competitive athletes who wish to increase their capacity to obtain intense and prolonged effort	Maximum bearable energy (0-999)	Mi-SCAN
Strength	Increase in maximum strength Increase in muscular contraction speed	For competitive athletes practising a discipline that requires strength and speed	Maximum bearable energy (0-999)	Mi-SCAN

Programmes	Effects	Uses	Stimulation energies	Mi functions if Mi-SENSOR cable (sold separately) connected
Explosive strength	Increase in the speed at which a level of strength is reached Improvement in effectiveness of explosive gestures (relaxation, shoot, etc.)	For athletes practising a discipline in which explosive strength is an important factor in performance	Maximum bearable energy (0-999)	Mi-SCAN
Fartlek	Training and preparation of muscles for all kinds of muscular work (endurance, resistance, strength, explosive strength) through different working sequences	At the beginning of the season, to "reinitialise" the muscles after a period of stoppage and before more intensive, more specific training periods During the season for those who do not want to favour a single type of performance and who prefer to subject their muscles to different work regimes	Maximum bearable energy (0-999)	Mi-SCAN

To define the level of Sport programmes in relation with your personal characteristics, please see the training planner available on our website www.compex.info. At the end of a cycle, you may either start a new cycle at the next level up or do some maintenance at the rate of 1 session a week at the last level reached.

Specific applications

Preparation for a cyclist training three times a week who wishes to improve endurance performance

Effort expended over a long period of time makes demands on the aerobic metabolism, for which the decisive factor is the quantity of oxygen consumed by the muscles. To progress in endurance, it is therefore necessary to increase as much as possible the supply of oxygen to the muscles stimulated by this type of effort. Because oxygen is conveyed by the blood, it is essential to have an efficient cardiovascular system, due to voluntary training under certain conditions. However, a muscle capacity to consume the oxygen it receives (oxydative capacity) can also be improved by following a specific work regime.

The **Endurance** programme of the Sport category leads to a significant improvement in the consumption of oxygen by muscles. Combining this programme with the **Capillarization** programme (of the Warm-up category), which develops the network of intramuscular capillaries, is particularly beneficial and allows endurance athletes to improve their performance levels.

Duration of the cycle: 8 weeks, 3 x/week

Eg for 1 week

Mon.: Rest

Tue.: 1 x **Endurance** 8G

Wed.: Cycling workout at 1.5 hours (moderate speed), then 1 x **Capillarization** 8◊

Thu.: 1 x **Endurance** 8G

Fri.: Rest

Sat.: 60' cycle training (moderate speed), then 1 x **Endurance** 8G

Sun.: Cycle trip for 2.5 hours (moderate speed), then 1 x **Capillarization** 8◊

Programmes: **Endurance** 8G and **Capillarization** 8Σ

Preparation for a runner training three times a week who wishes to progress in endurance (half-marathon, marathon)

Running as many miles as possible is essential in order to improve performance in endurance events. However, the strain on tendons and joints this type of training causes is today universally recognised. Integrating Compex electrostimulation into the training of the long-distance runner offers an excellent alternative that can help to overcome this problem.

The **Endurance** programme, which results in improving the capacity of muscles to consume oxygen, and the **Capillarization** programme (of the Warm-up category), which develops the capillaries in the muscles, allow greater endurance to be achieved while limiting the weekly mileage and therefore the risk of injury.

Duration of the cycle: 8 weeks, 3 x/week

Eg for 1 week

Mon.: Rest

Tue.: 1 x **Endurance** 8G

Wed.:

- Voluntary training: warm-up 20', then 1-2 series of 6 x (30" fast / 30" slow)
- Slow jogging at the end of the session, then 1 x **Capillarization** 8Σ

Thu.: 1 x **Endurance** 8G

Fri.: Rest

Sat.: Loose 60' jogging, then 1 x **Endurance** 8G

Sun.: Extended 1.5 hour run (moderate speed), then 1 x **Capillarization** 8Σ

Programmes: **Endurance** 8G and **Capillarization** 8Σ

Pre-season preparation of lactic capacity for a resistance sport with three active training sessions per week (800 metres, track cycling, etc.)

Example of planning to develop the lactic capacity (resistance) of the quadriceps. For other disciplines, the choice of muscles to be stimulated may be different (to determine these muscles in relation to your sporting discipline, refer to the training planner on our website www.compex.info).

During pre-season preparation for sports that make great demands on the lactic anaerobic system (intense effort sustained over as long as possible), it is essential not to neglect specific muscle preparation. Stimulation of the quadriceps (or a different key muscle group depending on the discipline practised) by means of the **Resistance** programme results in improved anaerobic power, as well as greater muscle tolerance to high concentrations of lactates. The practical benefits will be obvious: improved performance thanks to better muscular resistance to fatigue for exercises of the lactic anaerobic type.

In order to optimise the effects of this preparation, you are advised to supplement it with **Capillarization** sessions, carried out during the week leading up to the competition, see "Warm-up category, Achieving peak form before competition for resistance sports (eg: 800 metres, 1,500 metres, etc.)". An **Active recovery** session (of the Recovery category) session is recommended after the most intensive training. It accelerates the rate of muscle recovery and reduces fatigue during the period of the season when the amount of training is high.

Duration of the cycle: 6-8 weeks, 3 x/week

Eg for 1 week

Mon.: 1 x **Resistance** 8G

Tue.: Voluntary training on the track

Wed.: 1 x **Resistance** 8G

Thu.: Voluntary training on the track, then 1 x **Active recovery** 8◊

Fri.: Rest

Sat.: Rest

Sun.: 1 x **Resistance** 8G, followed by session voluntary training on the track

Programmes: **Resistance** 8G and **Active recovery** 8◊

Preparation for a cyclist training three times a week who wishes to improve his power

Developing the strength of the thigh muscles is always beneficial for the competitive cyclist. Certain forms of training on the bicycle (hill work) can make a contribution in this respect. However, results will be more spectacular if additional training using Compex muscular stimulation is undertaken at the same time. The special regime of muscle contractions of the **Strength** programme and the large amount of work to which the muscles are subjected allow a significant increase of the strength of the thigh muscles. Moreover, the **Active recovery** programme (of the Recovery category), carried out within three hours of the most intensive training, encourages muscular recuperation and makes it possible to follow on with qualitative training under optimum conditions.

Duration of the cycle: 8 weeks, 3 x/week

Eg for 1 week

Mon.: Rest

Tue.: 1 x **Strength** 8G

Wed.:

- Cycle training 45' (moderate speed), then 5-10 times on a 500-700 m hill (rapidly)

• Recovery during descent

• Inactivity 15-20', then 1 x **Active recovery** 8Σ

Thu.: 1 x **Strength** 8G

Fri.: Rest

Sat.: 60' cycle training (moderate speed), then 1 x **Strength** 8G

Sun.:

• Cycling 2.5-3 hours (moderate speed)

• Muscle strengthening on hills (use of a high gear ratio remaining seated), then 1 x **Active recovery** 8Σ

Programmes: **Strength** 8G and **Active recovery** 8◊

Preparation for a swimmer training three times a week who wishes to improve his swimming power

In swimming, developing the propulsive force of the upper limbs is an important factor in improving performance.

Certain forms of voluntary training practised in the water can contribute to this. However, integrating Compex muscular stimulation into the voluntary training programme makes it possible to achieve far better results.

The special muscular contraction regime of the **Strength** programme and the large amount of work to which muscles are subjected will allow you to increase significantly the strength of the latissimus dorsi, key muscles for the swimmer. Moreover, the **Active recovery** programme (of the Recovery category), carried out within three hours of the most intensive training, encourages muscular recuperation and makes it possible to follow on with qualitative training under optimum conditions.

Duration of the cycle: 8 weeks, 3 x/week

Eg for 1 week

Mon.: Rest

Tue.: 1 x **Strength** 18C

Wed.:

• 20-30' swimming training (different styles), then 5-10 times 100 m with pull-boy

• Recovery 100 m backstroke

• Return to gentle 15', then 1 x **Active recovery** 18◊

Thu.: 1 x **Strength** 18C

Fri.: Rest

Sat.: 1 hr swimming training including some technical work, then 1 x **Strength** 18C

Sun.:

• 20-30' swimming training (different styles), then 5-10 times 100 m with paddles

• Recovery 100 m backstroke

• Return to gentle 15', then 1 x **Active recovery** 18◊

Programmes: **Strength** 18C and **Active recovery** 18◊

Pre-season preparation for a team sport (football, rugby, handball, volleyball, etc.)

Planning example to develop the strength of the quadriceps. Depending on the sport being practised, a different muscle group may be chosen. During the preparatory pre-season period for team sports, it is essential not to neglect specific muscle preparation. In most team sports, the qualities of speed and strength make all the difference. Stimulation of the quadriceps (or a different key muscle depending on the sport concerned) by means of the Compex **Strength** programme will result in increased speed of contraction and muscular strength.

The practical benefits will be obvious: improvement in starting and movement speed , jumping, kicking, etc. An **Active recovery** session (of the Recovery category), taken after the most intensive workouts, accelerates the muscular recovery rate and reduces cumulative fatigue during the period of the season

Duration of the cycle: 6-8 weeks, 3 x/week

Eg for 1 week

Mon.: 1 x **Strength** 8G

Tue.: Collective training, then 1 x **Active recovery** 8Σ

Wed.: 1 x **Strength** 8G

Thu.: Collective training, then 1 x **Active recovery** 8Σ

Fri.: 1 x **Strength** 8G

Sat.: Rest

Sun.: Collective training or friendly match, then 1 x **Active recovery** 8Σ

Programmes: **Strength** 8G and **Active recovery** 8◊

Maintaining results achieved during preparation for team sports during the competitive period (football, rugby, handball, volleyball, etc.)

This example concerns only athletes who have completed a full cycle of training by electrostimulation (at least 6 weeks) as part of their pre-season preparation. The weekly session of stimulation with the **Strength** programme should be carried out on the same muscle groups as those stimulated during the preparation period (in our example, the quadriceps). During the season, when matches are played regularly, care should be taken not to overtrain the specific musculature. On the other hand, nor should the benefits of preparation be lost by suspending stimulation training for too long a period. During this period of competition, muscle qualities should be maintained by means of one weekly session of stimulation carried out using the **Strength** programme. It is also essential to leave a sufficiently long interval between this single weekly stimulation session and the day of the competition (3 days minimum).

The **Active recovery** programme (of the Recovery category), which must be used during the first three hours after the match, as well as after each session of intensive training, restores muscle equilibrium more quickly.

Duration of the cycle: During the sport season, 1 x/week

Eg for 1 week

Mon.: Rest

Tue.: Collective training, then 1 x **Active recovery** 8Σ (if training is intensive)

Wed.: 1 x **Strength** 8G

Thu.: Collective training, then 1 x **Active recovery** 8Σ (if training is intensive)

Fri.: Rest

Sat.: Rest

Sun.: Match, then 1 x **Active recovery** 8Σ (within the 3 hours that follow the competition)

Programmes: **Strength** 8G and **Active recovery** 8◊

Pre-season preparation of the explosive strength of the quadriceps for an athlete training three times a week (long jump or high jump, sprinting, etc.)

For other disciplines the choice of muscles to be stimulated may be different (refer if necessary to the training planner on our website www.compex.info). For all sports where the essential performance factor is explosive muscle strength, specific muscle preparation is the main factor in pre-season preparation.

The explosive strength of muscles may be defined as the capacity of a muscle to attain a high level of maximum strength as quickly as possible. To develop this quality, voluntary training relies on tiring muscle training sessions that often include the risk of injury, since they are necessarily carried out using heavy weights.

Integrating the use of the **Explosive strength** programme lightens the muscle training sessions while at the same time

offering greater benefits and more time for technical work.

Duration of the cycle: 6-8 weeks, 4 x/week

Eg for 1 week

Mon.: 1 x **Explosive strength** 8G

Tue.: Voluntary training in stadium

Wed.: 1 x **Explosive strength** 8G

Thu.: Voluntary training including technical work jumping pit

Fri.: 1 x **Explosive strength** 8G

Sat.: Rest

Sun.: Voluntary training in the stadium followed by 1 x **Explosive strength** 8G

Programme: **Explosive strength** 8G

Resuming activity after a break in training: varied muscle preparation

In this example, we assume that the sportsman wants to work above all on the latissimus dorsi. Furthermore, you can also use the **Fartlek** programme on several muscular groups during the same cycle (for example, the latissimus dorsi, then quadriceps).

The Fartlek comes from Scandinavia. It involves diversified training carried on in a natural setting. During training, different work-out routines are alternated and different muscles are stimulated. For example, after a few minutes of slow jogging, the trainee does a series of accelerations followed by some jumps, before resuming a slower jog, and so on. The objective is to work on different muscular qualities without however emphasising any one in particular.

This activity is frequently done either at the beginning of the season, for general muscular reactivation, or done regularly by leisure-time sports enthusiasts who do not want to emphasise any particular kind of muscular performance, but rather want to stay fit and reach the right level in all kinds of muscular work. At the beginning of the season or after a significant break in training, the resumption of physical and/or sports activity should be done progressively and become increasingly specific. It is thus normal to perform a few initial sessions with the aim of making the muscles do all kinds of work to prepare them for later training that will be more intensive and more oriented towards a specific kind of performance. Through these eight sequences that automatically follow each other, the **Fartlek** programme imposes different kinds of work to the stimulated muscles and thus makes them used to all kinds of effort.

Duration of the cycle: 1-2 weeks, 4-6 x/week

Programme: **Fartlek** 18C

3. Fitness category

Programmes	Effects	Uses	Stimulation energies	Mi functions if Mi-SENSOR cable (sold separately) connected
Muscle building	Improvement in muscle development Balanced increase in muscle tone and volume	To improve the musculature in general (strength, volume, tone)	Maximum bearable energy (0-999)	Mi-SCAN
Body Building	Increase in muscular volume Increase in the diameter of the muscle fibres Improvement in muscular resistance	For body-building enthusiasts and users who want to increase their muscle mass	Maximum bearable energy (0-999)	Mi-SCAN
Muscle definition	Increase in muscle tone without marked increase in volume to build up firm muscles	For those who want very firm and wiry muscles, but without a great muscle volume increase	Maximum bearable energy (0-999)	Mi-SCAN

At the end of a cycle, you may either start a new cycle at the next level up or do some maintenance at the rate of 1 session a week at the last level reached.

Specific applications

Preparation for a fitness enthusiast who wants to develop harmonious shoulder muscles with a moderate increase in muscle volume

Most voluntary exercise, such as jogging or cycling, puts little stress on the shoulder muscles. That is why it is particularly important to compensate this under-utilisation by associating Compex sessions with your voluntary training schedule.

The **Muscle building** programme imposes a lot of specific work to the muscles of the upper part of your body and thus ensures the harmonious development of your shoulders, with firm and well shaped muscles. Unlike voluntary exercises involving heavy weights that can be traumatic for your joints and tendons, stimulation with Compex involves no, or very little stress for your joints and tendons.

Duration of the cycle: 5 weeks 4 x/week, alternating muscular groups

Progression in the levels: Weeks 1-5: Step to the next level every week

Eg for 1 week

Mon.: 45'-1 hour of voluntary exercise (jogging, swimming, cycling, fitness activity, etc.), then 1 **Muscle building** 17H

Tue.: Rest

Wed.: 1 x **Muscle building** 18C

Thu.: 45'-1h of voluntary physical activity (jogging, swimming, cycling, fitness activity, etc.)

Fri.: 1 x **Muscle building** 17H

Sat.: Rest

Sun.: 1 x **Muscle building** 18C

Programme: **Muscle building** 18C and 17H

Muscle volume for a body-builder

Despite repeated efforts during their voluntary training, many body-builders encounter difficulties in developing certain muscle groups. The specific stimulation imposed on muscles by the **Body Building** programme significantly increases the volume of the stimulated muscles. In addition, for a similar session time, the Compex **Body Building** programme provides a greater volume gain than voluntary training. The additional training imposed by this stimulation programme on muscles not sufficiently receptive to traditional training provides a solution for the harmonious development of all muscle groups without recalcitrant areas.

To obtain optimum progress, you are advised to:

1 Precede the **Body Building** sessions with short voluntary training focused on strength; for example 3 series of 5 repetitions at 90% of maximum force;
2 Carry out a **Capillarization** (of the Warm-up category) session directly after the **Body Building** session.

Muscle volume for a body-builder training three times a week

In this example, we assume that the body-builder wants to work on his/her biceps, which he/she considers to be his/her weak point. It is of course possible to stimulate other muscles as well. Also this **Body Building** programme can be applied to several muscular groups at the same time (e.g. biceps then calves).

Duration of the cycle: 8 weeks, 3 x/week

Progression in the levels:

- Week 1: **Body Building** level 1
- Weeks 2-3: **Body Building** level 2
- Weeks 4-5: **Body Building** level 3
- Weeks 6-8: **Body Building** level 4

Eg for 1 week

- Mon.: Rest
- Tue.: Voluntary training focused on the muscles of the lower limbs, followed by active work on the biceps: 3 series of 5 repetitions at 90% of the Fmax., then 1 x **Body Building** 20D followed by 1 x **Capillarization** 20Σ
- Wed.: Rest
- Thu.: Voluntary training focused on the muscles of the trunk, followed by active work on the biceps: 3 series of 5 repetitions at 90% of the Fmax., then 1 x **Body Building** 20D followed by 1 x **Capillarization** 20Σ
- Fri.: Rest
- Sat.: Voluntary training focused on the muscles of the upper limbs, followed by active work on the biceps: 3 series of 5 repetitions at 90% of the Fmax., then 1 x **Body Building** 20D followed by 1 x **Capillarization** 20Σ
- Sun.: Rest

Programmes: **Body Building** 20D and **Capillarization** 20Σ

Muscle volume for a body-builder training at least five times a week

In this example, we assume that the body-builder wants to work on his/her calves, but it is of course possible to stimulate other muscles as well. Also this **Body Building** programme can be applied to several muscular groups at the same time (e.g. calves then biceps).

Duration of the cycle: 12 weeks, 5 x/week

Progression in the levels:

- Week 1: **Body Building** level 1
- Weeks 2-3: **Body Building** level 2
- Weeks 4-5: **Body Building** level 3
- Weeks 6-8: **Body Building** level 4
- Weeks 9-12: **Body Building** level 5

Eg for 1 week

- Mon.: Voluntary training focused on the muscles of the lower limbs, followed by active work on the calf muscles: 3 series of 5 repetitions at 90% of the Fmax., then 1 x **Body Building** 4A followed by 1 x **Capillarization** 4Σ
- Tue.: Voluntary training focused on the muscles of the upper limbs, followed by active work on the calf muscles: 3 series of 5 repetitions at 90% of the Fmax., then 1 x **Body Building** 4A followed by 1 x **Capillarization** 4Σ
- Wed.: Rest
- Thu.: Voluntary training focused on the muscles of the lower limbs, followed by active work on the calf muscles: 3 series of 5 repetitions at 90% of the Fmax., then 1 x **Body Building** 4A followed by 1 x **Capillarization** 4Σ
- Fri.: Voluntary training focused on the muscles of the upper limbs, followed by active work on the calf muscles: 3 series of 5 repetitions at 90% of the Fmax., then 1 x **Body Building** 4A followed by 1 x **Capillarization** 4Σ
- Sat.: Voluntary training focused on the muscles of the muscles of the trunk, followed by active work on the calf muscles: 3 series of 5 repetitions at 90% of the Fmax., then 1 x **Body Building** 4A followed by 1 x **Capillarization** 4Σ

Sun.: Rest

Programmes: **Body Building** 4A and **Capillarization** 4Σ

Developing and sculpting your abdominal belt

To restore or develop the qualities of your abdominal muscles, they must do a lot of intensive work.

Also, the voluntary exercises of the abdominal belt required to achieve results are unpleasant and often also dangerous. Indeed, if they are not performed correctly, they can cause crushing of the lumbar spine accompanied, as a consequence, by the onset or aggravation of pain in the lower back.

Compex offers a specific stimulation mode to make your abdominal belt firmer, improve its tone and give it a more harmonious shape, or even to develop a "rock-hard" abdomen. All this can be achieved without the minimum stress and danger for the lumbar spine.

Duration of the cycle: 10 weeks

Weeks 1-5: 3 x **Muscle building** 10I (all of the abdominal belt) or 11I (rectus abdominis muscles)/week

Weeks 6-10: 3 x **Muscle definition** 10I (all of the abdominal belt) or 11I (rectus abdominis muscles)/week

Progression in the levels:

Weeks 1-5: **Muscle building**
Step to the next level every week

Weeks 6-10: **Muscle definition**
Step to the next level every week

Programmes: **Muscle building** and **Muscle definition** 10I or 11I

4. Body sculpt category

Programmes	Effects	Uses	Stimulation energies	Mi functions if Mi-SENSOR cable (sold separately) connected
Toning	To tone the muscles	To be used to begin with in order to tone up and prepare the muscles before more intensive firming work	Maximum bearable energy (0-999)	Mi-SCAN
Firming	To regain muscle firmness and restore the support function of the muscles	To be used as the main treatment for muscle firming	Maximum bearable energy (0-999)	Mi-SCAN
Shaping	To define and sculpt the body when the muscles are already firm	To be used when the firming phase is finished	Maximum bearable energy (0-999)	Mi-SCAN

At the end of a cycle, you may either start a new cycle at the next level up or do some maintenance at the rate of 1 session a week at the last level reached.

Specific applications

To firm and sculpt the body

The **Toning**, **Firming** and **Shaping** programmes impose perfectly adapted and progressive work on the muscles. **T**his very intense muscular activity (hundreds of seconds of sustained contractions) first tones and firms your muscles, then redefines their contours to sculpt your body. In this example, we assume that the fitness enthusiast wants to work on her arms. It is of course possible to stimulate other muscles as well. Also this stimulation routine can be applied to several muscular groups at the same time (e.g. arms then thighs).

Duration of the cycle: 13 weeks

- Weeks 1-3: 4 x **Toning** 21D /week
- Weeks 4-8: 4 x **Firming** 21D /week
- Weeks 9-13: 4 x **Shaping** 21D /week

Progression in the levels:

- Weeks 1-3: **Toning**
  Step to the next level every session
- Weeks 4-8: **Firming**
  Step to the next level every week
- Weeks 9-13: **Shaping**
  Step to the next level every week

Programmes: **Toning**, **Firming** and **Shaping** 21D

5. Recovery category

Programmes	Effects	Uses	Stimulation energies	Mi functions if Mi-SENSOR cable (sold separately) connected
Active recovery	Marked increase in blood flow Accelerates the elimination of waste from the muscular contraction Endorphinic effect (see Pain category) Relaxing effect	To improve and accelerate the muscle recovery after an intensive exercise To be used during the first 3 hours after each session of intensive training or after a competition	Progressively increase stimulation energies until you obtain clearly visible muscular twitches	Mi-SCAN Mi-RANGE
Relaxing massage	Reduced muscular tension Drainage of the toxins responsible for the exaggerated increase of muscular tone Effect of well-being and relaxation	To eliminate uncomfortable or painful sensations, following an exaggerated increase of muscular tone	Progressively increase stimulation energies until you obtain clearly visible muscular twitches	Mi-SCAN Mi-RANGE

Programmes	Effects	Uses	Stimulation energies	Mi functions if Mi-SENSOR cable (sold separately) connected
Reviving massage	Considerable increase of blood flow in the stimulated region Improvement of tissue oxygenation Elimination of free radicals	To contrast effectively sensations of fatigue and localised heaviness	Progressively increase stimulation energies until you obtain clearly visible muscular twitches	Mi-SCAN Mi-RANGE
Regenera-tion	Analgesic effect through the release of endorphins Marked increase in blood flow encouraging oxygenation and drainage Activation of the oxidative metabolic pathway Reactivation of the proprioceptive pathways	To be used the day after competition as recovery training or as a complement to this type of training, the intensity of which can then be reduced	Progressively increase stimulation energies until you obtain clearly visible muscular twitches After 10 minutes, when tetanic contractions begin, the energies should be increased to the bearable maximum (0-999) After this phase of tetanic contractions, reduce the energy but ensure that muscle twitches continue to remain pronounced	Mi-SCAN

Specific applications

You want to recover better and faster after exercise

A session with the **Active recovery** programme, which accelerates drainage of toxins, will help you to relax your muscles and to restore your muscular balance faster, whatever the type of exercise taken. This programme is normally used between 15 minutes and 3 hours after exercise. If the result is insufficient, the session may be repeated immediately a second time. A session can also be repeated on the following day, in the event of persistent stiffness and cramp.

Duration of the cycle: To be used throughout the season

Programme: **Active recovery** 8Σ

Treatment of uncomfortable muscular tensions in the back of the neck

Remaining in a seated position for long periods, associated with repetitive movements of the upper limbs (as is frequently the case in front of a computer screen), is often responsible for an uncomfortable ñ or even painful ñ increase of muscle tension of the back of the neck muscles. Any other condition of stress may also create situations leading to a state of excessive muscular tension, which is often responsible for painful or uncomfortable sensations.

The in-depth effects produced by the **Relaxing massage** programme ease such painful sensations, with a particularly relaxing effect.

Duration of the cycle: To be used on the muscles in the back of the neck, whenever an occasional sensation of painful muscular tension is felt; to be repeated, if necessary, in cases of particularly strong muscular tension.

Programme: **Relaxing massage** 15Σ

Treatment of a localised sensation of heaviness or an occasional state of fatigue

The many stresses of everyday life are often responsible for uncomfortable, or even painful, physical sensations. A circulation slowdown is often the result of insufficient physical activity, frequently aggravated by the need in one's working life to remain in the same position for many hours (in a seated position, for example). Without the very least gravity, this simple "vascular slowing" is, however, often the source of unpleasant sensations (e.g. heaviness often localised in the lower limbs but also, sometimes, in another part of the body).

The **Reviving massage** programme produces, in the greatest comfort, a reactivation of the blood circulation that allows an acceleration of tissue oxygenation and the elimination of painful sensations, due to insufficient physical effort.

Duration of the cycle: To be used on the calf muscles, whenever an occasional sensation of heaviness is felt; to be repeated, if necessary, in cases of persistent discomfort.

Programme: **Reviving massage** 25Σ

Use of the Regeneration programme to eliminate muscle fatigue more quickly (cross-country running, football, basketball, tennis, etc.) and restore good muscular sensations more quickly

The **Regeneration** programme, known also as the "day-after programme" must be used on key muscles for the discipline being practised. In this example, key muscles for the cross-country runner (quadriceps) will be stimulated. For other disciplines, the choice of muscles to be stimulated may be different. Note that this type of programme is particularly beneficial for all sports where competitions are repeated at frequent intervals, during tournaments and cups in various sports.

The stimulation session using the **Regeneration** programme must be carried out the day after a competition to replace or supplement so-called "restoration" training, which can therefore be less intensive. Contrary to the **Active recovery** programme, which provokes no tetanic contractions and which must be used during the three hours after the competition or intensive training, the **Regeneration** programme is a form of light training which, in addition to an analgesic effect and an increased blood flow, aims to impose a small degree of anaerobic training and likewise to provoke slight tetanic contractions that are not tiring, making it possible to reactivate the proprioceptive pathways. Energy pathways are also gently stimulated, allowing their metabolic equilibrium to re-establish itself.

The session is composed of 6 stimulation sequences that follow on automatically:

- 1st sequence: painkilling effect
- 2nd sequence: significant increase in blood output
- 3rd sequence: tetanic contractions to restore muscular sensations
- 4th sequence: activation of the oxidative metabolic pathway
- 5th sequence: significant increase in blood output
- 6th sequence: relaxing effect
- Duration of the cycle: To be used throughout the season, according to the frequency of competitions; the day after each competition.

Programme: **Regeneration** 8G

6. Pain relief category

Table of pathologies

Pathologies	Programmes	References
Neuralgia of the upper limb (brachial neuralgia)	Modulated TENS	See application page 297
Chronic muscular pain (polymyalgia)	Endorphinic	See application page 297
Contracture (eg: localized contracture in external side of the calf)	Decontracture	See application page 297
Chronic muscular pain in the back of the neck (cervical pain)	Cervical pain	See application page 298
Muscular pain in the thoracic region (thoracic back pain)	Thoracic back pain	See application page 298
Muscular pain in the low back region (low back pain)	Low back pain	See application page 299
Sharp and recent muscular pains affecting a muscle in the low back (lumbago)	Lumbago	See application page 299
Chronic elbow pain (epicondylitis = tennis elbow)	Epicondylitis	See application page 299

Programmes	Effects	Uses	Stimulation energies	Mi functions if Mi-SENSOR cable (sold separately) connected
Modulated TENS	Blocks transmission of pain by the nervous system	All acute or chronic localized pain	Progressively increase stimulation energies until a pronounced tickling sensation can be felt under the electrodes	Mi-TENS
Endorphinic	Analgesic effect through the release of endorphins Increases blood flow	To combat chronic muscular pain	Progressively increase stimulation energies until you obtain clearly visible muscular twitches	Mi-SCAN Mi-RANGE
Decontracture	Reduced muscular tension Relaxing effect	To combat recent and localized muscular pain	Progressively increase stimulation energies until you obtain clearly visible muscular twitches	Mi-SCAN Mi-RANGE
Cervical pain	Analgesic effect through the release of endorphins Increases blood flow	Analgesic current specifically adapted to pains in the back of the neck	Progressively increase stimulation energies until you obtain clearly visible muscular twitches	Mi-SCAN Mi-RANGE

Programmes	Effects	Uses	Stimulation energies	Mi functions if Mi-SENSOR cable (sold separately) connected
Thoracic back pain	Analgesic effect through the release of endorphins Increases blood flow	Analgesic current specifically adapted to pain in the thoracic region (below the back of the neck and above the low back)	Progressively increase stimulation energies until you obtain clearly visible muscular twitches	Mi-SCAN Mi-RANGE
Low back pain	Analgesic effect through the release of endorphins Increases blood flow	Analgesic current specifically adapted to persistent low back pain (lumbar region)	Progressively increase stimulation energies until you obtain clearly visible muscular twitches	Mi-SCAN Mi-RANGE
Lumbago	Reduced muscular tension Relaxing effect	Analgesic current specifically adapted to sharp and sudden low back pain (lumbar region)	Progressively increase stimulation energies until you obtain clearly visible muscular twitches	Mi-SCAN Mi-RANGE
Epicondylitis	Blocks transmission of pain by the nervous system	Analgesic current specifically adapted to persistent pain in the elbow	Progressively increase stimulation energies until a pronounced tickling sensation can be felt under the electrodes	Mi-TENS

The use of Pain relief programmes should not be prolonged without medical advice. If the pain is great and/or persistent, you are advised to consult a doctor. Only a doctor can make an accurate diagnosis and put in place therapeutic actions designed to encourage the disappearance of the disorder.

Specific applications

Neuralgia of the upper limb (brachial neuralgia)

Some people suffer from arthritis in the joints of the vertebrae at the back of the neck, or from arthritis or periarthritis of the shoulder. These situations often give rise to pain that runs down one arm and is known as ìbrachial neuralgiaî. These arm pains that start in the shoulder or the back of the neck can be reduced with the Compex **Modulated TENS** programme by following the practical recommendations outlined below.

Duration of the cycle: 1 week, min. 1 x/day, then adapt according to any change in the pain

According to requirements, the **Modulated TENS** programme can be repeated a number of times during the same day.

Programme: **Modulated TENS** 35Σ-

Chronic muscular pain (polymyalgia)

Some people suffer from muscular pain that affects several muscles or parts of different muscles at the same time. The localization of this chronic pain can vary over time. These continual and diffuse muscle pains are the result of chronic contractures in which acids and toxins accumulate, irritating the nerves and causing pain.

The **Endorphinic** programme is particularly effective against such pain since, in addition to its pain-reducing effect, it increases the blood flow to the contractured muscular groups and removes from them accumulations of acids and toxins.

Example: localized pain in the biceps. However, the pain may affect other muscular groups. The practical application illustrated below remains valid, but it is then necessary to place the electrodes on the muscular group concerned.

Duration of the cycle: 4 weeks, 2 x/day, with a 10 minute break between the 2 sessions

You are advised to consult your doctor if no improvement is observed after the first week of use.

Programme: **Endorphinic** 20Σ

Contracture (eg: localized contracture in external side of the calf)

After tiring muscle work, intense training or a sporting competition, certain muscles or certain parts of muscles often remain tense and slightly painful. These are known as muscular contractures which should disappear after a few days with rest, good rehydration, a balanced food intake with mineral salts and application of the **Decontracture** programme.

The phenomenon of contracture frequently affects the calf muscles, but can also occur with other muscles. In this case, simply follow the same practical recommendations as below, but place the electrodes on the muscular group concerned.

Duration of the cycle: 1 week, 1 x/day

You are advised to consult your doctor if no improvement is observed after the first week of use.

Programme: **Decontracture** 24Σ

Chronic muscular pain in the back of the neck (cervical pain)

Positions in which the muscles of the back of the neck remain tense for long periods of time, for example working in front of a computer screen, may be responsible for the onset of pain in the back of the neck or on either side of the base of the neck, in the upper back.
These pains are due to a contracture of the muscles, of which the prolonged tension crushes the blood vessels and prevents the blood from supplying and oxygenating the muscle fibres. If this phenomenon is prolonged, there is an accumulation of acid and the blood vessels atrophy. The pain then becomes continuous or can appear after only a few minutes spent working in an unfavourable position.
These chronic pains in the back of the neck can be treated effectively with the **Cervical pain** programme which reactivates the circulation, drains accumulations of acid, oxygenates the muscles, develops the capillaries and relaxes the contractured muscles.

Duration of the cycle: 4 weeks, 2 x/day, with a 10 minute break between the 2 sessions

You are advised to consult your doctor if no improvement is observed after the first week of use.

Programme: **Cervical pain** 15Σ-

Muscular pain in the thoracic region (thoracic back pain)

Vertebral arthritis and positions in which the muscles of the spinal column remain under tension for long periods of time are often responsible for the onset of pain in the middle of the back, which is accentuated with fatigue. Pressure of the fingers on the muscles on either side of the spinal column can often trigger a sharp pain. These pains are due to a contracture of the muscles, of which the prolonged tension crushes the blood vessels and prevents the blood from supplying and oxygenating the muscle fibres. If the phenomenon is prolonged, there is an accumulation of acid and the blood vessels atrophy. The pain then becomes continuous or can appear after only a few minutes spent working in an unfavourable position.
These chronic pains in the back can be treated effectively with the **Thoracic back pain** programme which reactivates the circulation, drains accumulations of acid, oxygenates the muscles, develops the capillaries and relaxes the contractured muscles.

Duration of the cycle: 4 weeks, 2 x/day, with a 10 minute break between the 2 sessions

You are advised to consult your doctor if no improvement is observed after the first week of use.

Programme: **Thoracic back pain** 13Σ-

Muscular pain in the low back region (low back pain)

Low-back pain is the most frequently encountered pain. In a standing position, the entire weight of the trunk is concentrated on the joints between the last vertebrae and the sacrum. The low back region is therefore under particular strain. The discs between the vertebrae are crushed and the low back muscles contractured and painful. There are very many treatments for the relief of low back pain sufferers; among these, the specific currents of the Compex **Low back pain** programme provide an appreciable improvement and can even resolve the problem if it is essentially muscular in origin.

Duration of the cycle: 4 weeks, 2 x/day, with a 10 minute break between the 2 sessions

You are advised to consult your doctor if no improvement is observed after the first week of use.

Programme: **Low back pain** 12Σ-

Sharp and recent muscular pains affecting a muscle in the low back (lumbago)

During back movement, for example when lifting something, when turning or when standing up straight after bending down, a sudden pain can be triggered in the low back. Those who suffer from this problem present a contracture of the low back muscles and feel a sharp pain in this region; because they cannot stand completely straight, they remain bent over on one side. All of these symptoms indicate what is known as lumbago, which is principally the result of a sharp and intense contracture of the low back muscles (lumbar region). In such a situation, you must always consult a doctor to receive appropriate treatment.
In addition to such treatment, the specific Compex **Lumbago** programme can help effectively to relax the muscles and remove the pain.

Duration of the cycle: 1 week, 1 x/day

You are advised to consult your doctor if no improvement is observed after the first week of use.

Programme: **Lumbago** 33Σ-

Chronic elbow pain (epicondylitis = tennis elbow)

All tendons of the muscles that allow us to stretch our hand, wrist and fingers end at the small external bone mass of the elbow (epicondyle). Hand and finger movements therefore transmit tensions that are concentrated in the tendon endings at this bone mass. When hand movements are repetitive, as is the case for painters, tennis players or even those who constantly use the mouse of a computer system, small injuries, accompanied by inflammation and pain, develop in the region of the epicondyle. This is known as "epicondylitis", which is characterised by pain around the external bone mass of the elbow when pressure is applied or when the forearm muscles are contracted.
The Compex **Epicondylitis** programme supplies specific current to combat this type of pain. It acts effectively as a supplement to rest. However, it is necessary to consult your doctor if the pain gets worse or does not disappear quickly after a few sessions.

Duration of the cycle: 1 week, min. 2 x/day, then adapt according to any change in the pain

According to requirements, the **Epicondylitis** programme can be repeated several times during the same day.

Programme: **Epicondylitis** 36Σ-

7. Rehabilitation category

Programmes	Effects	Uses	Stimulation energies	Mi functions if Mi-SENSOR cable (sold separately) connected
Disuse atrophy	Reactivation of the trophic action of muscle fibres damaged during atrophy	Treatment to combat any reduction of muscle volume: - as a result of trauma necessitating immobilisation - accompanying degenerative lesions to joints	Maximum bearable energy (0-999)	Mi-SCAN
Muscle growth	Increased diameter and capacity of muscle fibres damaged during under-activity or inactivity imposed by some kind of pathological problem Restoration of muscle volume	After a period of using the Disuse atrophy treatment, as soon as the muscle shows signs of a slight recovery of volume or tone Until the virtually complete restoration of muscle volume	Maximum bearable energy (0-999)	Mi-SCAN
Reinforce-ment	Increase the strength of a muscle previously atrophied Increase the strength of a muscle affected by a pathological process	At the end of rehabilitation, when the muscle has regained normal muscle volume From the onset of rehabilitation for non-atrophied muscles	Maximum bearable energy (0-999)	Mi-SCAN

In a rehabilitation process, it is essential, initially, to treat the atrophy (i.e. regain normal muscle volume) before attempting to increase the strength of the muscle using the **Reinforcement** programme.
The use of programmes of the Rehabilitation category must under no circumstances replace rehabilitation sessions carried out in the presence of the physiotherapist. Although the restoration of initial muscular qualities is a key factor in the process of rehabilitation, other aspects (joint mobility, vigilance, residual pain, etc.) can only be dealt with effectively by a competent health professional.
Some pathologies and some post-operative rehabilitations require special precautions during use; you are therefore always advised to seek the opinion of your doctor or physiotherapist before using any of the programmes of the Rehabilitation category.

At the end of a cycle, you may do some maintenance at the rate of 1 session a week at the last level reached.

Specific applications

Atrophy of the quadriceps as a result of trauma

The quadriceps is a voluminous muscle located in the anterior part of the thigh. It is the main muscle that allows you to stretch the knee; its role is therefore essential for walking, running, climbing stairs, etc. Any trauma affecting a lower limb therefore results in a wasting of this muscle, the reduction of muscle volume being more or less serious depending on the duration of the period of inactivity. This atrophy is normally spectacular when it occurs after trauma to the knee, particularly if the trauma was treated by means of surgical intervention.
The programmes of the Rehabilitation category are specifically designed to treat the deterioration of muscle fibres that results from such a process. The progressiveness of the work imposed by the different recommended programmes is decisive in obtaining optimum results.

Duration of the cycle: 10 weeks, 1 x/day

Weeks 1-2: **Disuse atrophy**
Weeks 3-8: **Muscle growth**
Weeks 9-10: **Reinforcement**

Programmes: **Disuse atrophy**, **Muscle growth** and **Reinforcement** 8G

Development of the latissimus dorsi to treat and prevent tendinous shoulder pain (rotator cuff syndrome)

The shoulder is a complex joint enabling us to make broad gestures (for example, raising our arms in the air).
During some of these movements, the tendons in the shoulder can rub against or be compressed against bony fragments of the joint.
When this phenomenon is repeated, or occurs in certain patients who have an unfavourable anatomic constitution, such damage to the tendons causes them to become inflamed and thicker, resulting in a considerable increase in their degree of compression. The pain often then becomes very severe, preventing all movement of the shoulder; it can even set in at night and cause serious sleep deprivation.
Appropriate medical treatment can only be put in place by consulting a doctor. However, electrostimulation of the latissimus dorsi by means of specific Compex programmes can reduce the distress to which tendons are subjected by increasing their freedom of movement around the shoulder joint.

Duration of the cycle: 6 weeks, 1 x/day

Weeks 1-2: **Disuse atrophy**

Weeks 3-6: **Muscle growth**

Programmes: **Disuse atrophy** and **Muscle growth** 18C

Development of the abdominal belt to prevent pain in the lumbar region (low back pain)

Low back pain arises most frequently among subjects who do not have sufficient musculature in the abdominal region. These muscles in fact represent a veritable natural "corset", the role of which is to protect the low back region from excessive stress of all kinds. This is why it is referred to as the abdominal "belt". After a bout of low back pain, when the pain has stopped, a common recommendation is to improve the efficiency of the abdominal and back muscles to prevent any recurrence.
The **Disuse atrophy** programme imposes a large amount of work on the abdominal muscles, without requiring the harmful or even dangerous positions often adopted when voluntary exercises are carried out incorrectly.
An abdominal belt that has greater strength and endurance can then satisfactorily fulfil its role of protecting the low back region.

Duration of the cycle: 4 weeks, 1 x/day

Programme: **Disuse atrophy** 10I

Development of the low back muscles to prevent pain in the lumbar region (low back pain)

Like the muscles of the abdominal region, the muscles of the low back (lumbar muscles) also play a role in protecting the low back region.
Subjects whose low back muscles are inadequately effective are particularly prone to low back pain. Once the pain in the low back has disappeared, people are often advised to strengthen the low back muscles with a view to preventing the recurrence of painful episodes.
However, carrying out voluntary back exercises often presents serious difficulties for people who suffer from low back pain.
That is why electrostimulation of the low back muscles using the **Disuse atrophy** programme is one of the preferred methods to improve the efficiency of these muscles.

Duration of the cycle: 4 weeks, 1 x/day

Programme: **Disuse atrophy** 14B

Strengthening of the lateral peroneus muscles after ankle sprain

The purpose of the lateral peroneus muscles is to maintain the stability of the ankle joint and prevent it from rotating inwardly. After a sprain, these muscles lose their reflex-contraction capacity together with much of their strength.

Regaining competent lateral peroneal muscles after a sprain is a fundamental step, without which recurrence is very probable. To do their job correctly, the lateral peroneals must be strong enough to prevent the foot twisting inwards, but they must also contract reflexively at the precise moment when the heel tilts inwards.

To develop both of these aspects, strength and speed of contraction, you should use the **Reinforcement** programme, which produces efficient lateral peroneal muscles and therefore helps to prevent recurrence.

Duration of the cycle: 4 weeks, 1 x/day

Weeks 1-4: **Reinforcement**

Week 5 and following weeks:
Reinforcement 1x/week if you take part in a dangerous sporting activity.

Programme: **Reinforcement** 2A

8. Test category

Programmes	Effects	Uses	Stimulation energies	Mi functions if Mi-SENSOR cable (sold separately) connected
Demo	Refer to the quick startup guide "Test your Compex in 5 minutes".			Mi-SCAN Mi-TENS Mi-RANGE

VIII EMC TABLE (Electromagnetic Compatibility)

The Compex Performance needs special EMC precautions and must be installed and started according to the EMC information supplied in this manual.

All RF wireless transmission systems can affect the Compex Performance.

The use of accessories, sensors and cables other than those recommended by the manufacturer may result in stronger emissions or reduce the immunity of the Compex Performance.

The Compex Performance should not be used beside or stacked on top of any other equipment. If you must use it side by side or on top of another system, you should check that the Compex Performance works properly in the chosen configuration.

RECOMMENDATIONS AND DECLARATION BY THE MANUFACTURER CONCERNING ELECTROMAGNETIC EMISSIONS

The Compex Performance is intended for use in the electromagnetic environment specified below. The customer or user of the Compex Performance should ensure that it is used in this environment.

Emissions test	Compliance	Electromagnetic environment - guide
CISPR 11 RF emissions	Group 1	The Compex Performance uses RF energy only for its internal operation. Consequently, its RF emissions are very low and are unlikely to interfere with any adjacent electrical device.
CISPR 11 RF emissions	Class B	The Compex Performance is suitable for use in any establishment, including a private dwelling and a place connected directly to the low voltage mains supply which powers residential buildings.
Harmonic emissions IEC 61000-3-2	Not applicable	
Voltage fluctuations/ emission oscillations IEC 61000-3-3	Not applicable	

RECOMMENDED SPACING BETWEEN A PORTABLE AND MOBILE COMMUNICATION APPLIANCE AND THE COMPEX PERFORMANCE

The Compex Performance is designed for use in an electromagnetic environment in which radiated RF waves are controlled. The buyer or user of the Compex Performance can contribute to preventing electromagnetic interference by maintaining a minimum distance between RF portable and mobile communication appliances (transmitters) and the Compex Performance according to the table of recommendations below and according to the maximum output power of the telecommunication appliance.

Maximum transmitter output power W	Spacing according to the frequency of the transmitter mCISPR 11		
	From 150 kHz to 80 MHz $d = 1.2\sqrt{P}$	From 80 MHz to 800 MHz $d = 1.2\sqrt{P}$	From 800 MHz to 2.5 GHz $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

In the case of transmitters whose maximum output power is not shown in the table above, the recommended spacing of d metres (m) can be calculated using the appropriate equation for the transmitter frequency, where P is the maximum output power of the transmitter in watts (W) as set by the transmitter manufacturer.

NOTE 1: At 80 MHz and at 800 MHz, the spacing for high frequency amplitude is applied.
NOTE 2: These guidelines may not be appropriate for some situations. Electromagnetic wave propagation is modified by absorption and reflection due to buildings, objects and persons.

RECOMMENDATIONS AND DECLARATION BY THE MANUFACTURER -

The Compex Performance is designed for use in the electromagnetic environment stipulated below. The buyer or user of the Compex Performance must ensure it is used in this recommended environment.

Immunity test	Test level IEC 60601	Observance level
Electrostatic discharge (DES) IEC 61000-4-2	± 6 kV at the contact ± 8 kV in air	± 6 kV at the contact ± 8 kV in air
Rapid electrical transients in bursts of noise IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	Not applicable System battery-powered
Surge currents IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	Not applicable System battery-powered
Voltage trough, short power cuts and voltage variations on power supply input lines IEC 61000-4-11	< 5% VT (trough > 95% of VT) for 0.5 cycle < 40% VT (trough > 60% of VT) for 5 cycles < 70% VT (trough > 30% of VT) for 25 cycles < 5% VT (trough > 95% of VT) for 5 seconds	Not applicable System battery-powered
Magnetic field at mains frequency (50/60 Hz) IEC 61000-4-8	3 A/m	

NOTE: VT is the AC supply voltage before application of the test level.

- ELECTROMAGNETIC IMMUNITY

The Compex Performance is designed for use in the electromagnetic environment stipulated below. The buyer or user of the Compex Performance must ensure it is used in this recommended environment.

Electromagnetic environment - recommendations
Floors must be wood, concrete or ceramic tiles. If floors are covered with synthetic material, the relative humidity must be maintained at a minimum of 30%.
The quality of the power supply should be that of a typical commercial or hospital environment.
The quality of the power supply should be that of a typical commercial or hospital environment.
The quality of the power supply should be that of a typical commercial or hospital environment. If the Compex Performance user requires continuous operation during mains power cuts, we recommend that the Compex Performance is powered by a UPS or a battery.
Magnetic fields at the mains frequency should be at the level of a representative site located in a typical commercial or hospital environment.

NOTE: VT is the AC supply voltage before application of the test level.

RECOMMENDATIONS AND DECLARATION BY THE MANUFACTURER

The Compex Performance is designed for use in the electromagnetic environment stipulated below. The buyer or user of the Compex Performance must ensure it is used in this recommended environment.

Immunity test	Test level IEC 60601	Observance level
RF immunity IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	Signal lines Not applicable for power supplies of devices which are battery-powered
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz 10 V/m 26 MHz to 1 GHz	3 A/m 10 V/m

NOTE 1: From 80 MHz to 800 MHz, the spacing for high frequency amplitude is applied.
NOTE 2: These guidelines may not be appropriate for some situations.

a The field intensity from fixed transmitters, such as radio telephone base stations (cellular/wireless) and a mobile radio, amateur radios, AM and FM radio emissions and TV emissions cannot be predicted with any accuracy. It may therefore be necessary to consider an analysis of the electromagnetic environment of the site to calculate the electromagnetic environment coming from RF fixed transmitters. If the field intensity measured in the environment where the Compex Performance is located exceeds the appropriate RF observance level above, the Compex Performance should be monitored to ensure it is operating properly.

NOTE: VT is the AC supply voltage before application of the test level.

- ELECTROMAGNETIC IMMUNITY

The Compex Performance is designed for use in the electromagnetic environment stipulated below. The buyer or user of the Compex Performance must ensure it is used in this recommended environment.

Electromagnetic environment - recommendations

Portable and mobile RF communication devices must only be used relative to the Compex Performance and its wiring at a distance which is not less than the spacing recommended and calculated using the appropriate equation for the transmitter's frequency. Recommended spacing

$d = 1.2 \sqrt{P}$

$d = 1.2 \sqrt{P}$ 80 MHz to 800 MHz

$d = 2.3 \sqrt{P}$ 800 MHz to 2.5 GHz

Where P is the maximum output power of the transmitter in watts (W) set by the manufacturer's specifications and where d is the recommended spacing in metres (m). The field intensity of RF fixed transmitters, as determined by an electromagnetic survey [a] must be less than the observance level to be found in each frequency range [b].

Interference may occur close to any appliance identified by the following symbol:

Electromagnetic wave propagation is modified by absorption and reflection due to buildings, objects and persons.

In the event of abnormal operation, new measures may then be imposed, such as realignment or movement of the Compex Performance.

b Above the frequency amplitude from 150 kHz to 80 MHz, the field intensity must be < 3 V/m

NOTE: VT is the AC supply voltage before application of the test level.